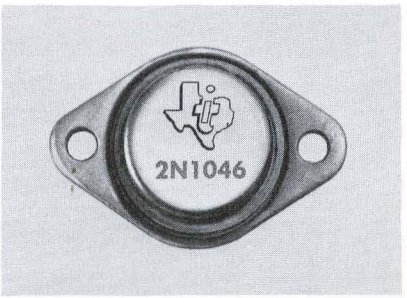
TYPE 2N1046

PNP DIFFUSED GERMANIUM POWER TRANSISTOR

TYPE 2N1046
BULLETIN NO. DL-S 974
AUGUST, 1958

A High-Frequency Power Transistor

Made by the diffusion process especially for computer core driver applications, horizontal and vertical CRT deflection circuits



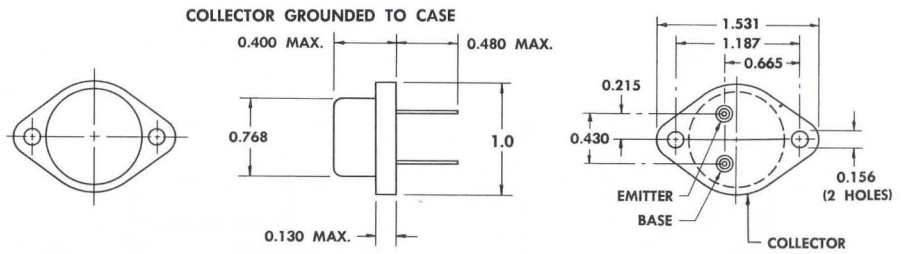
ACTUAL SIZE

qualification testing

To assure maximum reliability, stability and long life, all units are heat cycled from −55°C and room humidity to +75°C and 95% relative humidity for four complete cycles over an eight-hour period. All transistors are thoroughly tested for rigid adherence to specified design characteristics.

mechanical data

The welded case is hermetically sealed with glass-to-metal seals between the mounting base and the leads. The mounting base material is high conductivity copper providing an excellent path for heat flow to a heat sink which must be provided to permit operation at maximum rated dissipation. The collector is electrically attached to the mounting base. The approximate weight of the unit is 20 grams.



maximum ratings at 25° C*

V_{CBO}	Collector to Base ($I_C = -2mA$)	−80 V
V_{CEX}	Collector to Emitter ($V_{BE} = +0.2V$, $I_C = -2mA$)	−80 V
V_{EBO}	Emitter to Base ($I_E = -2mA$)	−1 V
	Total Dissipation	15 W
I_C	Collector Current	3 A
T_j	Operating Junction Temperature	+65 °C
T_A	Storage Temperature	−55 to +100°C
	Thermal Resistance from Collector Junction to Mounting Base	2.66 °C/W

typical characteristics at 25° C *

BV_{CBO}	Collector to Base Breakdown Voltage ($I_C = -2mA$, $I_E = 0$)	80 V
h_{FE}	Forward Current Transfer Ratio ($I_C = -0.5A$, $V_C = -2V$)	70
f_T	Internal Cutoff Frequency ($I_C = -0.2A$, $V_C = -20V$)	10 mc

* Temperature is measured at mounting base.

SEMICONDUCTOR-COMPONENTS DIVISION

TEXAS INSTRUMENTS
INCORPORATED
POST OFFICE BOX 312 • DALLAS, TEXAS

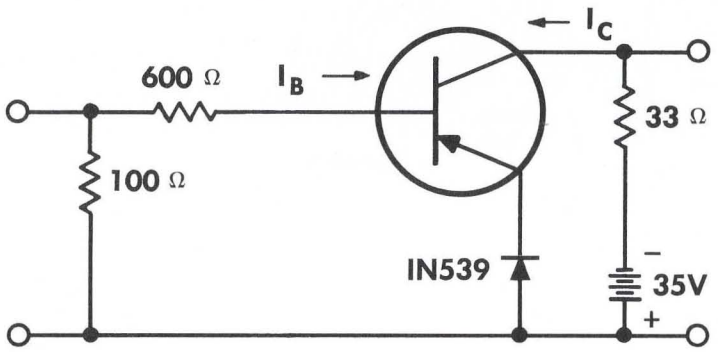
TYPE 2N1046

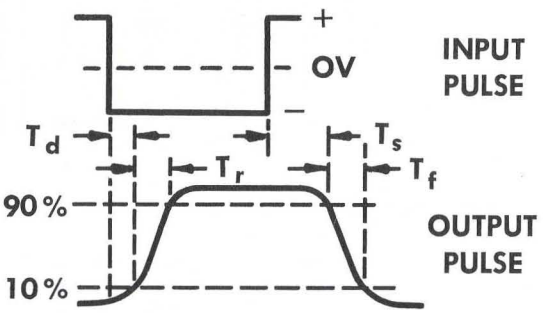
PNP DIFFUSED GERMANIUM POWER TRANSISTOR

design characteristics at 25°C*

symbol	parameter	test conditions	min	design center	max	unit
BV_{CBO}	Collector to Base Breakdown Voltage	$I_C = -2mA$ $I_E = 0$	−80	—	—	V
BV_{EBO}	Emitter to Base Breakdown Voltage	$I_E = -2mA$ $I_C = 0$	−1	—	—	V
I_{CBO}	Collector Reverse Current	$V_{CB} = -40V$ $I_E = 0$	—	−0.2	−1	mA
I_{EBO}	Emitter Reverse Current	$V_{EB} = -0.5V$ $I_C = 0$	—	−0.02	−0.2	mA
f_T	Internal Cutoff Frequency (where $h_{fe} = 1$)	$I_C = -0.2A$ $V_C = -20V$	—	10	—	mc
h_{FE}	Forward Current Transfer Ratio	$I_C = -0.5A$ $V_C = -2V$	40	70	—	—
$V_{CE(SAT)}$	Saturation Voltage	$I_C = -1A$ $I_B = -0.1A$	—	−0.75	−1.3	V
V_{BE}	Base Voltage	$I_C = -0.5A$ $V_C = -2V$	—	−0.34	−0.4	V
C_{ob}	Collector to Base Capacity	$I_E = 0$ $V_{CB} = -40V$	—	140	—	μμf

TYPICAL SWITCHING CHARACTERISTICS





TYPICAL SWITCHING TIMES

T_d	Delay Time	0.3	μ sec
T_r	Rise Time	0.7	μ sec
T_s	Storage Time	1.2	μ sec
T_f	Fall Time	0.5	μ sec

TEST CURRENTS

I_{B1} (Turn-on Current) = − 30mA

I_{B2} (Turn-off Current) = + 30mA

I_C (Collector Current) = − 1A

TEXAS INSTRUMENTS
INCORPORATED
POST OFFICE BOX 312 • DALLAS, TEXAS

PRINTED IN U. S. A.